

What is claimed is:

Sub 1. A transmitting apparatus, comprising:  
transmitting means for transmitting the same  
contents of update information a plurality number of  
5 times, the update information representing that data  
has been updated,

wherein the transmission timing of the same  
contents of the update information transmitted by said  
transmitting means is designated corresponding to  
10 operating state information of receiving means that  
receives the update information from said transmitting  
means. b

2. The transmitting apparatus as set forth in  
claim 1,

15 wherein the transmission timing is a time  
zone in which the update information is transmitted.

3. The transmitting apparatus as set forth in  
claim 1,

20 wherein the transmission timing is a time  
period of which the update information is transmitted  
the plurality number of times.

4. The transmitting apparatus as set forth in  
claim 1,

25 wherein the transmitting apparatus is a  
transmitting device for transmitting a hierarchical  
structure of a directory for hierarchically managing  
locations of contents data, comprising:

managing means for managing a hierarchical structure of a directory composed of a container entry and a leaf entry, a container entry containing information in the immediately lower hierarchical level thereof, a leaf entry being disposed in the immediately lower hierarchical level of a container entry, a leaf entry not containing information in the immediately lower hierarchical level thereof;

detecting means for detecting a change of the hierarchical structure of the directory managed by said managing means and obtaining first difference information and second difference information corresponding to the detected result, the first difference information being the difference of container entries, the second difference information being the difference of leaf entries; and

transmitting means for transmitting third difference information for reproducing the hierarchical structure of the directory at a predetermined time period along with the first difference information and the second difference information,

wherein the predetermined time period is variably designated corresponding to the operating state information of a receiving side.

5. The transmitting apparatus as set forth in claim 4,

wherein the predetermined time period is

designated corresponding to chronological variation information of the operating state of the receiving side.

6. The transmitting apparatus as set forth in claim 4, further comprising:

communicating means for communicating with the receiving side,

wherein said communicating means receives the operating state information from the receiving side.

7. The transmitting apparatus as set forth in claim 4,

wherein the third difference information is composed of information of only container entries of the hierarchical structure of the directory.

8. The transmitting apparatus as set forth in claim 7,

wherein the predetermined time period is a time period that is a multiple of the time period of which the first difference information is transmitted.

9. The transmitting apparatus as set forth in claim 4,

wherein the third difference information is composed of information of only leaf entries in the immediately lower hierarchical level of each of container entries.

10. The transmitting apparatus as set forth in claim 9,

wherein the predetermined time period is a time period that is a multiple of the time period of which the second difference information is transmitted.

11. A transmitting method, comprising the step of:

transmitting the same contents of update information a plurality number of times, the update information representing that data has been updated,

wherein the transmission timing of the same contents of the update information transmitted at the transmitting step is designated corresponding to operating state information of receiving means that receives the update information from said transmitting means.

12. The transmitting method as set forth in claim 11,

wherein the transmitting method is a method for transmitting a hierarchical structure of a directory for hierarchically managing locations of contents data, the method comprising the steps of:

managing a hierarchical structure of a directory composed of a container entry and a leaf entry, a container entry containing information in the immediately lower hierarchical level thereof, a leaf entry being disposed in the immediately lower hierarchical level of a container entry, a leaf entry not containing information in the immediately lower

hierarchical level thereof;

detecting a change of the hierarchical structure of the directory managed at the managing step and obtaining first difference information and second difference information corresponding to the detected result, the first difference information being the difference of container entries, the second difference information being the difference of leaf entries; and

transmitting third difference information for reproducing the hierarchical structure of the directory at a predetermined time period along with the first difference information and the second difference information,

wherein the predetermined time period is variably designated corresponding to the operating state information of a receiving side.

13. A receiving apparatus for receiving a hierarchical structure of a directory for hierarchically managing the locations of contents data that is transmitted, comprising:

receiving means for receiving first difference information, second difference information, and third difference information, the first difference information being obtained by detecting a change of container entries, the second difference information being obtained by detecting a change of leaf entries, the directory being composed of container entries and

leaf entries, a container entry containing information in the immediately lower hierarchical level thereof, a leaf entry not containing information in the immediately lower hierarchical level thereof, the third difference information being transmitted at a predetermined time period, the third difference information being capable of reproducing the hierarchical structure of the directory; and

managing means for managing the hierarchical structure of the directory formed corresponding to the first difference information, the second difference information, and the third difference information received by said receiving means,

wherein local operating state information of the receiving apparatus is monitored and transmitted.

14. The receiving apparatus as set forth in claim 13, further comprising:

communicating means for communicating with a transmitting side that transmits the third difference information,

wherein said communicating means transmits the operating state information to the transmitting side.

15. The receiving apparatus as set forth in claim 13,

wherein the predetermined time period is designated on the transmitting side that transmits the

third difference information corresponding to the operating state information.

16. The receiving apparatus as set forth in claim 13,

5 wherein the third difference information is composed of information of only container entries of the hierarchical structure of the directory.

17. The receiving apparatus as set forth in claim 16,

10 wherein the predetermined time period is a time period that is a multiple of the time period of which the first difference information is transmitted.

18. The receiving apparatus as set forth in claim 13,

15 wherein the third difference information is composed of information of only leaf entries in the immediately lower hierarchical level of each of container entries.

19. The receiving apparatus as set forth in claim 18,

20 wherein the predetermined time period is a time period that is a multiple of the time period of which the second difference information is transmitted.

20. A receiving method for receiving a  
25 hierarchical structure of a directory for hierarchically managing the locations of contents data that is transmitted, comprising the steps of:

receiving first difference information,  
second difference information, and third difference  
information, the first difference information being  
obtained by detecting a change of container entries,  
5 the second difference information being obtained by  
detecting a change of leaf entries, the directory being  
composed of container entries and leaf entries, a  
container entry containing information in the  
immediately lower hierarchical level thereof, a leaf  
10 entry not containing information in the immediately  
lower hierarchical level thereof, the third difference  
information being transmitted at a predetermined time  
period, the third difference information being capable  
of reproducing the hierarchical structure of the  
15 directory; and

managing the hierarchical structure of the  
directory formed corresponding to the first difference  
information, the second difference information, and the  
third difference information received at the receiving  
20 step,

wherein local operating state information of  
the receiving apparatus is monitored and transmitted.

21. A transmitting and receiving system,  
comprising:

25 transmitting means for transmitting the same  
contents of update information a plurality number of  
times, the update information representing that data



has been updated; and

receiving means for receiving the update information transmitted by said transmitting means,

wherein the transmission timing of the same contents of the update information transmitted by said transmitting means is designated corresponding to operating state information of said receiving means.

22. The transmitting and receiving system as set forth in claim 21,

wherein the transmission timing is a time zone in which the update information is transmitted.

23. The transmitting and receiving system as set forth in claim 21,

wherein the transmission timing is a time period of which the update information is transmitted the plurality number of times.

24. The transmitting and receiving system as set forth in claim 21,

wherein the transmitting and receiving system is a system for transmitting a hierarchical structure of a directory for hierarchically managing locations of contents data and receiving the transmitted hierarchical structure, comprising:

first managing means for managing a hierarchical structure of a directory composed of a container entry and a leaf entry, a container entry containing information in the immediately lower

hierarchical level thereof, a leaf entry being disposed in the immediately lower hierarchical level of a container entry, a leaf entry not containing information in the immediately lower hierarchical level thereof;

detecting means for detecting a change of the hierarchical structure of the directory managed by said first managing means and obtaining first difference information and second difference information corresponding to the detected result, the first difference information being the difference of container entries corresponding to the detected result, the second difference information being the difference of leaf entries;

transmitting means for transmitting third difference information for reproducing the hierarchical structure of the directory at a predetermined time period along with the first difference information and the second difference information;

receiving means for receiving the first difference information, the second difference information, and the third difference information transmitted by said transmitting means; and

second managing means for managing the hierarchical structure of the directory formed corresponding to the first difference information, the second difference information, and the third difference

information received by said receiving means.

wherein the predetermined time period is  
variably designated corresponding to the operating  
state information of a receiving side that receives the  
third difference information transmitted by said  
transmitting means.

25. The transmitting and receiving system as set  
forth in claim 24,

wherein the predetermined time period is  
designated corresponding to chronological variation  
information of the operating state of the receiving  
side.

26. The transmitting and receiving system as set  
forth in claim 24, further comprising:

communicating means for communicating with a  
transmitting side that transmits the third difference  
information to the receiving side,

wherein said communicating means transmits  
the operating state information from the receiving side  
to the transmitting side.

27. The transmitting and receiving system as set  
forth in claim 24,

wherein the third difference information is  
composed of information of only container entries of  
the hierarchical structure of the directory.

28. The transmitting and receiving system as set  
forth in claim 27,

wherein the predetermined time period is a time period that is a multiple of the time period of which the first difference information is transmitted.

29. The transmitting and receiving system as set forth in claim 24,

wherein the third difference information is composed of information of only leaf entries in the immediately lower hierarchical level of each of container entries.

30. The transmitting and receiving system as set forth in claim 29,

wherein the predetermined time period is a time period that is a multiple of the time period of which the second difference information is transmitted.

31. A transmitting and receiving method, comprising the step of:

transmitting the same contents of update information a plurality number of times, the update information representing that data has been updated; and

receiving the update information transmitted at the transmitting step,

wherein the transmission timing of the same contents of the update information transmitted at the transmitting step is designated corresponding to operating state information received at the receiving step.

32. The transmitting and receiving method as set forth in claim 31,

wherein the transmitting and receiving method is a method for transmitting a hierarchical structure of a directory for hierarchically managing locations of contents data and receiving the transmitted hierarchical structure, the method comprising the steps of:

managing a hierarchical structure of a directory composed of a container entry and a leaf entry, a container entry containing information in the immediately lower hierarchical level thereof, a leaf entry being disposed in the immediately lower hierarchical level of a container entry, a leaf entry not containing information in the immediately lower hierarchical level thereof;

detecting a change of the hierarchical structure of the directory managed at the first managing step and obtaining first difference information and second difference information corresponding to the detected result, the first difference information being the difference of container entries corresponding to the detected result, the second difference information being the difference of leaf entries;

transmitting third difference information for reproducing the hierarchical structure of the directory

at a predetermined time period along with the first difference information and the second difference information;

5 receiving the first difference information, the second difference information, and the third difference information transmitted at the transmitting step; and

10 managing the hierarchical structure of the directory formed corresponding to the first difference information, the second difference information, and the third difference information received at the receiving step,

15 wherein the predetermined time period is variably designated corresponding to the operating state information of a receiving side that receives the third difference information transmitted at the transmitting step.